

ABSTRACT

An lens assembly has a having a height TT and a focal length f_0 and three lens elements with first and second surfaces, the first surface of each element facing the object. The first lens element has a positive power and a focal length f_1 . The second lens element 20 is a aspheric lens, the first surface being concave and facing the first lens element 5 second surface. The second lens element second surface being an aspheric surface. The third lens element first surface is convex having a radius of r_1 and the second surface having a radius r_2 with $|r_2| > |r_1|$. The first, second and third lens elements are shaped are formed to obtain a ratio of f_1/f_0 in the range of 0.5 to 2.0 and a $TT/DI < 1.5$. The elements are formed and spaced to obtain an image with a maximum effective 10 dimension DI on an image plane in a digital camera.